International Journal of Sales & Marketing Management Research and Development (IJSMMRD)
ISSN(P): 2249-6939; ISSN(E): 2249-8044
Vol. 5, Issue 1, Feb 2015, 11-20

CORRELATES OF PERCEIVED FRUSTRATION TOWARDS INTERACTIVE VOICE RESPONSE SYSTEMS: A STUDY AMONG MOBILE TELECOMMUNICATION SERVICE CUSTOMERS

G. VAISHNAVI[1] & S. K. G. GANESH[2]

[1]Senior Research Fellow, Crescent Business School, B.S. Abdur Rahman University, Chennai, Tamil Nadu, India

[2]Professor, Crescent Business School, B.S. Abdur Rahman University, Chennai, Tamil Nadu, India

ABSTRACT

Interactive Voice Response systems (IVR system) today render the widest technological customer service for Mobile Telecommunication customers. In the recent times, the adoption of the IVR system by customers is diversified. The purpose of this research paper is to determine the relationship between certain cognitive factors while operating IVR system and perceived frustration after operating IVR system in Mobile Telecommunication services. The paper used survey method with a help of structured questionnaire to collect data from the IVR system users. Based on the responses, correlation is used to analyze the relationship between all the cognitive factors and customer perceived frustration. The test results showed the relationships of both cognitive factors while operating IVR system and customer perceived frustration. The research result revealed that among the cognitive factors, information interpretation while operating IVR system have a strong relationship on perceived frustration than the other cognitive factors. The research paper addressed the need of determining certain factors for customer perceived frustration on operating Mobile Telecommunication IVR system in Chennai. The results would be of useful to design and alter the IVR system in future for the Mobile Telecommunication service providers.

KEYWORDS: Interactive Voice Response, Frustration, Mobile Telecommunication, Listening, Attention, Information Interpretation

INTRODUCTION

In the competitive world, companies treat customers as king. To retain and sustain the customers for long time, the companies take enormous initiatives and plan for wide range of Customer Relationship Management (CRM) activities. Customer relationship activities induce the customers to have good opinion about the company and it also kindles a positive relationship towards the company's products and services. Companies try their optimum capacity to have a good relationship with their customers' round the clock. In an earlier attempt by Farooqi and Dhusia (2011) noted that CRM is a significant strategy to identify and satisfy customer needs and behaviors, and doing so will result in a stronger relationship with the customers. Companies plan the customer relationship (or) customer service initiatives in prior to any other activities.

In the recent past, many companies depend on technologies to serve their customers better and develop their relationship activities to higher standards. Today, there are several techniques and technologies available for companies to serve their customers superior. Information Technology integration to improve CRM in the real world have also been drastically improved (Bohling, et. al., 2006; Osarenkhoe, 2006; Piercy, 2009; Awasthi and Sangle, 2012).

Among the customer centric technologies, Self Service Technologies (SST) plays a remarkable role in customer service and relationship activities. Self service technologies services are produced entirely by the customer without any direct involvement or interaction with the firm's employees (Zeithaml and Bitner, 2003). Advancement in this current world encouraged the emergence of many new self service technologies into the market. Some of the common self service technologies include Automatic Teller Machines (ATM), internet baking, internet shopping, package trackers, payment systems, Interactive Voice Response systems (IVR system), self-scanners, etc. Among self service technologies, Interactive Voice Response system (IVR system) is one among the major system, which is used by many companies for their customer service activity.

IVR system is a software application that allows a telephone caller to select options from a voice menu (Kumar, et al., 2010). IVR system serves as a bridge between people and computer database by connecting the telephone network with the database (Mishra, et al., 2012). It serves the customers automatically without any human intervention. Practically, as highlighted by Mishra, et al., (2012), all major industries are potential users of IVR system. Namely, an IVR system is commonly used by many industries such as telecommunication, hotels, durables, finance, education, travel, services, etc. In the wide range of industries, mobile telecommunication industry is an industry which operates IVR system vibrantly to serve their customers better and effectively in India. Most of the companies today use IVR systems and now-a-days, when we call any company for that matter, the first thing we hear is an IVR system voice rather than a human voice (Anton, 2000). IVR system is interactive in nature which uses pre-coded messages and accepts customer response from touch tone phones (Gooding, 1996). Interactive Voice Response system (IVR system) is a SST which is widely used by many industries for retaining and improving customer relations. Across the world, even though many industries use IVR system for their customer service, in India IVR system is aggressively used by banking, mutual funds, insurance, consumer durables, mobile communication, education and travel industries. In addition to this, particularly, IVR system is also used in some peculiar industries where call centers was more common in earlier decades.

According to Telecom Annual Report (2013), telecom circle in India is broadly classified into 22 circles and in which Tamilnadu circle tops the list with the maximum mobile users. At present eight mobile service providers operate their service in Chennai circle (TRAI, 2013) and all the 8 mobile telecommunication service providers operationalize IVR system service for their customers in Chennai. Almost 80% of the mobile telecommunication customers utilize IVR system for many purposes, such as, for making product enquires and promotional offers enquiries, for registering complaints, for getting service requests and for doing any other general enquiries, etc.

Though predominant mobile telecommunication customers use IVR system for their utilities, most customers have a negative feeling towards the system. Dean (2008) have also substantiated in his research study that, significant reports in the popular press suggest much consumer frustration with IVR system self service. There are also many continuous articles in dailies which possess the customer voice against IVR system. As customer frustration towards the IVR system is a common concern and only a handful of earlier research attempts have paid attention towards this wide research direction. IVR system users who are uncomfortable with the system would perceive frustration to operate IVR system on the whole.

Frustration was first introduced by Freud (Tuzovic, 2010) and the concept was also developed from Freudian tradition. Frustration is an emotion which is triggered by the negative feeling or failure to achieve the goal. Frustration occurs when the targeted (or) expected goals do miss (Berkowitz, 1989). Many authors (Britt and Janus, 1940; Popplestone

and McPherson, 1988; Colman, 2001; Anderson and Bushman, 2002) defined frustration as, "Blocking or prevention of a potentially rewarding or satisfying act or sequence of behavior". In a very few studies, customer frustration was researched in technological related issues. Agbatogun, et al., (2011) attempted to study the effect of customers cognitive and emotion towards the level of computer frustration. Customers perceive frustration on IVR system for many reasons and it may even be both customers' external (or) internal factors. Customers' external factors may pertain to the situation and environment of usage, technological situations, etc. Customers do not have much control on external factors, whereas, internal factors may significantly pertain to customer cognitive emotion which arrases by customer themselves. As an extension to the customer internal factors which induce customers to perceive frustration, IVR system users' cognitive behaviors may play a vital role on customer frustration.

Though there is no predefined definition for cognition, general cognition is defined by Charles worth (1976), "Behavior under control of cognitive processes and employed toward the solution of problems which challenge the wellbeing, needs, plans, and survival of individuals". The expression of cognitive behavior may result in emotional aspects. The cognitive behavior of the customer themselves, may result in customer frustration. Failure to achieve a goal often results in feelings of frustration (Schiffman and Kanuk, 1994). As stated above, customer frustration may be caused by many external (or) internal factors and among the wide range of cognitive factors available in the literature, the current research study mainly focuses on listening, attention and information interpretation factors. The three cognitive factors while operating IVR system may thrust the customers to perceive frustration on operating IVR system.

Listening

Listening is often more tiring than talking and it demands intellectual effort (Glynn, et al., 2003). Listening is a form of non verbal communication whereby the customers and service providers are engaged in silent interactive conversation (Mckechnie, et., 2007). Though the listening capacity is researched in different dimensions, there are very few studies that attempt to study the customer listening in a technology view point. The current research is an effort to study the customer listening capacity of IVR system instruction (or) information and the relationship of customer listening and their perceived frustration on operating IVR system.

Attention

Diehl, et al., (2006) defined attention as "a person's ability to focus his (or) her attention on a given task to control and regulate external and internal distractions and to work towards a desired goal". IVR system which provides the exact information which is in need by customers improves the attention capacity of customers. Unless the customers pay attention to particular stimuli, the information given in the other channel will never be processed properly by the customers (Schepers, 2007). In an earlier research attempt by Rich, et al., (2005) found the relationship between frustration and attention in a children behavior with bipolar disorder and in an extension to that, the current study attempts to study the relationship between customer attention while operating IVR system and perceived frustration among IVR system users.

Information Interpretation

The interpretation of the information is purely individual and at hence, it is based on what the individual expects to see right from their past experience (Schiffman and Kanuk, 1994). The information processing is also related to both, the customers' cognitive ability and the complexity of the information which is processed (Schiffman and Kanuk, 1994). Sometimes, the customers miss some vital information to interpret (or) process as a result of some distractions. If the

customers are dissatisfied with the information and that would arouse frustration feeling for customers. Earlier, the relationship of frustration and effectiveness & efficiency of information and communication system in a hospital industry was studied by Levary (1997). In the current research effort, the paper attempts to study the relationship of information interpretation and customer perceived frustration on operating IVR system.

As discussed, individually, the cognitive factors and IVR system have been researched in different research attempts. There is a wide gap on the research for the different cognitive factors, frustration and IVR system in the literature. The research makes contribution towards the research gaps. The main purpose of this research attempt is to understand the main customer centric reasons for frustration on IVR system with particular reference to mobile telecommunication service providers in Chennai.

The paper addresses the effects of selected cognitive issues which majorly affect the customer perceived frustration. Identifying the relationship of cognitive factors and perceived frustration, enables the customer relationship managers to effectively design and alter the company's current IVR system successfully. According to the identified research question, the objective of the study is to evaluate the relationship between cognitive factors such as listening, attention and information interpretation while operating IVR system and perceived frustration after operating Interactive Voice Response system among Mobile Telecommunication IVR system users who use it on self-operating basis.

METHODS

Measures and Questionnaire Development

Most of the items and measures of the questionnaire were adopted and modified slightly according to the current research study. The dependent variable perceived frustration measure was solely developed for the research, as the variable was not popularly discussed in previous research attempts and that influenced to develop a new scale for measuring the variable. As per the existing literature, the scale construction process was adopted with initial questionnaire development, data collection and further factor analysis. The factor analysis classified five dimensions measuring to perceived customer (IVR system) frustration scale. The developed frustration scale constituted a high Cronbach reliability value of 0.91. Listening is a predominant variable which is more specifically measured in education, communication related research studies.

The current research study used Mishima, et al., (2000) scale for measuring the customers listening ability. Attention is the other cognitive variable which is widely used in advertisement, education, communication, marketing related studies. The present study used Soler, et al., (2012) scale to measure the customer attention. The scale was originally developed in Spanish to measure the attention in psychological aspect. The study also used Flores (2012) scale to measure the customer information interpretation skill. The scale was originally developed to measure the employees' information interpretation skill in organizations. All the scales were measured with 5-point Likert scale ranging from *Strongly Agree to Strongly Disagree*.

Initially, the questionnaire was developed in English, so as to suit the local language; the questionnaire was then translated to Tamil by a bilingual translator with high knowledge both in English and Tamil. The questionnaire was first constructed in English, then translated to Tamil and once more for double checking of the questionnaire, it was again translated from Tamil to English (McGorry, 2000).

Sampling

In India, among the mobile telecommunication, Chennai tops the 22 mobile circles amongst the users (Telecom Annual Report, 2013). Thus, Chennai was chosen as the target location for the current research attempt. As the exact sampling frame of IVR system users in Chennai was inadequate, convenience sampling method was used to collect the data from the respondents. This study was mainly focused on Chennai graduate phone users who use IVR system on self operating basis. Graduate users were particularly concentrated, as they have a higher ability to understand and interpret the information provided via IVR system more efficiently. Survey approach was used to generate response from the respondents and a structured questionnaire was used to collect the data.

Before sampling, reliability and validity of the questionnaire to be analyzed so as to use a strong instrument for measuring the variables (Li, 2013). Pilot test was conducted among 50 respondents to check the understanding and reliability of the instrument. Normally, Cronbach alpha above 0.70 is accepted to be a good scale for measuring the variables (Nunnally, 1978; Hair et. al., 2010). The pilot study Cronbach alpha ranged from 0.71 to 0.91 which is above the standards. To ensure the content validity of the questionnaire, the instrument was also tested with two marketing academic and two industrial experts who are more experienced in CRM areas.

Data Collection

Mobile recharge shops and mobile relationship centers which attracts the mobile telecommunication customers were chosen randomly from the target location. The subjects were initially enquired about their willingness to respond for the questionnaire and after which, the interested respondents completed the survey. 800 questionnaires were circulated to obtain data from the respondents and among that 627 responses were eligible to use for the further research work. Missing values was the major reason for eliminating some responses.

RESULTS

Descriptive Analysis

The eligible sample for the present study was 627 respondents. Male respondents accounted for 71.5% and female respondents were 28.5% of the total samples and at hence, male respondents were predominantly chunk of the samples. Comparatively 25.4% of the respondents were in the age group of 36–45years and which were the highest among the other age groups, 26–35years were with 23.8% in 627 respondents, 46–55years of respondents were 23.3%, followed by 16–25years were 22.8% and remaining 4.8% respondents were from 56years and above. As graduates were the respondents for the current study, in which, graduates were 70.7%, post graduates were 21.9% and remaining 7.5% of the respondents were above post graduation.

Table 1 depicts the correlation results of the study. The correlation coefficient between listening and attention while operating IVR systems is 0.185 which indicates 18.5% of positive relationship between them and it is also significant at 1% level. The correlation coefficient between listening and information interpretation while operating IVR system is 0.430, which specifies 43% of positive relationship between listening and information interpretation while operating IVR system and it is also significant at 1% level. The correlation coefficient between listening and perceived frustration is 0.046 which does not have any significant relationship between them. The correlation coefficient between attention and information interpretation while operating IVR systems is 0.340 which shows 34% of positive relationship between each other. Attention and information interpretation while operating IVR systems is significant at 1% level. The correlation

coefficient between attention while operating IVR systems and perceived frustration is 0.167 which illustrate 16.7 % of positive relationship on them. There is also a 1% level of significant relationship between attention while operating IVR system and perceived frustration. The correlation coefficient between information interpretation while operating IVR systems and perceived frustration is 0.94 which indicates 94% of positive relationship between them. It also interprets a very strong relationship between information interpretation and perceived frustration and it is significant at 1% level.

DISCUSSIONS

Based on the demographic profile described in the research study, majority of the respondents (71.5%) were male, in terms of age, nearly the respondents was normally distributed and remarkably 36 – 45years of respondents were 25. 4% in the total respondents. Concerning with the education level, graduate respondents were of 71.7% and which were predominantly more than the post graduates and above post graduate respondents. However, the earlier study has shown a positive relationship between customer frustration and IVR system (Dean, 2008). The present paper deeply identifies the factors for customer frustration.

The outcome of this paper also revealed a consistent result with the few previous studies. The results of the Pearson correlation analysis reported positive and significant relationship between perceived frustration and attention and information interpretation while operating IVR system. In which the result also portrays a strong correlation and relationship (94%) between perceived frustration and information interpretation while operating IVR system. In this research, listening while operating IVR system showed an insignificant relationship with perceived frustration. The literature have proved a supportive finding and suggested that providing information to consumers is an immensely complex task for companies and the companies preferences regarding how the information should best be presented vary among different consumers (Communication Consumer Panel, 2010).

However, attention was moderately significant, attention is essentially very important for customers to operate IVR system. Companies should also take a massive number of special initiatives to make their customers to pay attention to the instructions (or) information. The use of symbols and shapes could be effective in attracting attention of customers and thereby stimulating greater cognitive elaboration (Bettman, et al., 1986; Biederman and Cooper, 1992; Biederman and Gerhardstein, 1995, Wang and Dowding, 2010). Attractive symbols and shapes would help in the visual information, whereas in the case of IVR system, auditory information can be designed in such a way that, customers should never feel any monotonous in information (or) instructions in nature and they must also be made motivated to concentrate well on the menu instruction and information. Cognitive factors in the present research study, i.e., listening, attention and information interpretation while operating IVR system have a significant relationship with each other and that establishes that each factor of cognitive variable supports each other for operating IVR system in Mobile Telecommunication services.

CONCLUSIONS

The present study explored the cognitive factors relationship effect on customer perceived frustration after operating IVR system of Mobile telecommunication services. The paper analyzed the amount of relationship of cognitive factors such as listening, attention and information interpretation while operating IVR system. The result also proved some strong positive relationship between the factors. Customer frustration after operating IVR system is big fuzz for companies and the research paper would help the mobile telecommunication service providers to recognize the major factors which effect customer to perceive frustration after operating IVR system.

REFERENCES

1. Agbatogun, A.O., Ajelabi, P.A., & Oyewusi, L.M. (2011). The influence of cognition and emotion on Nigerian undergraduates' frustration during e-registration. *ASEAN Journal of Teaching and Learning in Higher Education, 3*(1), 1 – 11.
2. Anderson, C.A., & Bushman, B.J. (2002). Human aggression. *Annual Review of Psychology, 53*, 27 – 51.
3. Anton, J. (2000). The past, present and future of customer access centers. *International Journal of Service Industry Management, 11*(2), 120 – 130.
4. Awasthi, P., & Sangle, P.S. (2012). Adoption of CRM technology in multichannel environment: A review (2006 - 2010). *Business Process Management, 18*(3), 4 – 41.
5. Berkowitz, L. (1989). Frustration-aggression hypothesis: Examination and reformulation. *Psychological Bulletin, 106*(1), 59 – 73.
6. Bettman, J.R., Payne, J.W., & Staelin, R. (1986). Cognitive considerations in designing effective labels for presenting risk information. *Journal of Public Policy and Marketing, 5*(1), 1 – 28.
7. Biederman, I., & Cooper, E.E. (1991). Priming contour deleted images: Evidence for intermediate representations in visual object recognition. *Cognitive Psychology 23*(3), 393 – 419.
8. Biederman, I., & Gerhardstein, P.C. (1995). Viewpoint-dependent mechanisms in visual object recognition: A critical analysis. *Journal of Experimental Psychology, 21*(6), 1506 – 1514.
9. Bohling, T., Bowman, D., Lavalle, S., & Mittal, V. (2006). CRM implementation: Effectiveness issues and insights. *Journal of Service Research, 9*(2).
10. Britt, S.H., & Janus, S.Q. (1940). Criteria of frustration. *Psychological Review, 47*(6) 451 – 470.
11. Charlesworth, W. (1976). Intelligence as adaptation: An ethological approach, In L. Resnick (Ed.), The nature of intelligence (pp. 147 – 168). Norwood, NJ: Ablex.
12. Colman, A.M. (2001). A dictionary of psychology. New York, NY: Oxford university press.
13. Communication consumer panel (2010). Can I cancel? Mobile coverage and contract cancelation. Consumer Research Report. July.
14. Dean, D.H. (2008). What's wrong with IVR self-service. *Managing Service Quality, 18*(6), 594 – 609.
15. Diehl, M., Semegon, A.B., & Schwerzer, R. (2006). Assessing attention control in goal pursuit: A component of dispositional self-regulation. *Journal of Personality Assessment, 86*(3), 306 – 317.
16. Farooqi, M.R., & Dhusia, D.K. (2011). A comparative study of CRM and ECRM technologies. *Indian Journal of Computer Science and Engineering, 2*(4), 624 – 627.
17. Flores, L.G., Zheng, W., Rau, D., & Thomas, C.H. (2012). Organizational learning: Sub process identification; construct validation, and an empirical test of cultural antecedents. *Journal of Management, 38*(2), 640 – 667.
18. Gooding, C. (1996). Handling 4m calls a year, Financial Times, 6 March.

19. Glynn, W.J., & Ennis, S. (2003). Listening practices and performance in service organizations. *International Journal of Service industry Management, 14*(3), 310 – 330.

20. Hair, J.F., Black, W.C., Babin, B.J., & Anderson, R.E. (2010). *Multivariate Data Analysis*. (7th ed.). New Jersey, NJ: Prentice Hall: Englewood Cliffs.

21. Kumar, A., Sinha, C., & Sharma, R. (2010). *Customer relationship management concepts and application*. New Delhi: Biztantra.

22. Levary, R.R. (1997). Re-engineering hospital emergency rooms: An information system approach. *International Journal of Health Care Quality Assurance, 10*(5), 179 – 191.

23. Li, S. (2013). Exploring the relationships among service quality, customer loyalty and word-of-mouth for private higher education in Taiwan. *Asia Pacific Management Review, 18*(4), 375 – 389.

24. McGorry, S. Y. (2000). Measurement in a cross-cultural environment: Survey translation issues. *Qualitative Market research: An international Journal, 3*(2), 74 – 81.

25. Mckechnie, D.S., Grant, J., & Bagaria, V. (2007). Observation of listening behaviors in retail service encounters. *Managing Service Quality, 17*(2), 116 – 133.

26. Mishra, S.P., Chavan, A.S., & Gourkar,S.S. (2012). Interactive voice response system for educational institution. *International Journal of Advanced Engineering Technology, 8*(1).

27. Mishima, N., Kubota, S., & Nagata, S. (2000). The development of a questionnaire to assess the attitude of active listening. *Journal of Occupational Health, 42*, 111 – 118.

28. Nunnally, J. (1978). *Psychometric theory*. (2nd ed.). Newyork, NY: Mcgraw-Hill.

29. Osarenkhoe, A. (2006). Customer centric strategy: A longitudinal study of implementation of a customer relationship management solution. *International Journal of Technology Marketing, 1*(2), 115 – 144.

30. Piercy, N.f. (2009). Strategic relationships between boundary-spanning functions: Aliening customer relationship management with supplier relationship management. *Industrial Marketing Management, 38*, 857 – 864.

31. Popplestone, J.A. & McPherson, M.W. (1988). *Dictionary of concepts in general psychology*, New York, NY: Greenwood Press.

32. Rich, B.A., Schmajuk, M., Perez-Edgar, K.E., Pine, D.S., & Fox, N.A. (2005). The impact of reward, punishment, and frustration on attention in pediatric bipolar disorder. *Biol Psychiatry, 85*, 532 – 539.

33. Schepers. J.M. (2007). The construction and evaluation of an attention questionnaire. *SA Journal of Industrial Psychology, 33*(2), 16 – 24.

34. Schiffman, L.G., & Kanuk, L.L. (1994). Consumer Behavior. (5th ed). New Delhi: Prentice –Hall of India.

35. Soler, J., Tejedor, R., Feliu-Soler, A., Pascual, J., Cebolla, A., Soriano, J., Alvarez, E., & Perez, V. (2012). Psychometric proprieties of Spanish version of mindful attention awareness scale (MAAS*). Actas Esp psiquiatr, 40*(1), 19 – 26.

36. Telecom Annual Report (2013). Department of Telecommunication.

    http://www.dot.gov.in/reports-statistics/annual-report.

37. Telecom Regulatory Authority of India (2013). April - June. The Indian telecom services performance indicators. www.trai.gov.in/.../Indicator%20Reports%20-%20Jun-02122013.pdf.

38. Tuzovic, S. (2010). Frequent (flier) frustration and the dark side of word-of-web: Exploring online dysfunctional behavior in online feedback forms. *Journal of service Marketing, 24*(6), 446 – 457.

39. Wang, A., & Dowding, T. (2010). Effects of visual priming on improving web disclosures to investors. *Journal of Behavioral Science, 11*(1), 11 – 20.

40. Zeithaml, V.A., & Bitner, M.J. (2003). Services marketing: Integrating customer focus across the firm. New Delhi: TaTa McGraw-Hill.

APPENDICES

Table 1: Correlation Coefficient between Cognitive Factors and Perceived Frustration

	Listening	**Attention**	**Information Interpretation**	**Perceived Frustration**
Listening	1.000	0.185**	0.430**	0.046
Attention		1.000	0.340**	0.167**
Information interpretation			1.000	0.94**
Frustration				1.000

*** Correlation is significant at 0.01 (1%) levels (2-taile)*